

Claims

1. Device for determining a torque exerted on a shaft (10), wherein the shaft (10) comprises a first shaft section (12) and a second shaft section (14), the two shaft sections (12 and 14) being rotatable relative to each other, comprising a multi-pole magnetic ring (16) surrounding the first shaft section (12) and being connected thereto, and a stator holder (22) mounted to the second shaft section (14), wherein two stator elements (24, 30) are mounted to the stator holder (22) and each stator element (24, 30) comprises fingers (26, 32) which project in an axially or radially outward direction, are uniformly distributed about at least part of the periphery, and are interspaced by gaps, wherein the fingers (26) of one stator element (24) and the fingers (32) of the other stator element (30) are associated with the magnetic ring (16), characterized in that a second magnetic ring (36) is disposed on one of the two shaft sections (12, 14), which is associated with at least one magnetic sensor (48).
2. Device according to claim 1, characterized in that the second magnetic ring (36) is a multi-pole magnetic ring.
3. Device according to any one of the preceding claims, characterized in that the second magnetic ring (36) comprises two magnetic tracks.
4. Device according to claim 3, characterized in that each magnetic track is associated with a magnetic sensor (48).
5. Device according to any one of the preceding claims, characterized in that one single board (42) is provided for receiving the sensors (50)

associated with the stator elements (24, 30), and the at least one sensor (48) associated with the second magnetic ring (36).

6. Device according to claim 5, characterized in that the board (42) is accommodated in a housing (38).
7. Device according to any one of the preceding claims, characterized in that the stator holder (22) comprises an outer toothing (52) and the outer toothing (52) mates with a toothed wheel (54) and forms a translation gear.
8. Device according to claim 7, characterized in that the toothed wheel (54) has at least one magnet (56).
9. Device according to claim 8, characterized in that a sensor (58) is associated with the magnet (56).
10. Device according to claims 5 and 9, characterized in that the sensor (58) is disposed on the board (42).
11. Device according to any one of the claims 7 through 10, characterized in that the axis of the toothed wheel (54) extends parallel or orthogonal to the shaft (10).